มหาวิทยาลัยมหิดล
คณะแพทยศาสตร์
ศิริราชพยาบาล

Interhospital Conference
Case 2

Fellow 1 Jirapa Dilokruangchai, Fellow 2 Piriya Potjanamart
Advisor: Aj. Pornrumpa Pengkhum

Faculty of Medicine Siriraj Hospital, Mahidol University

Patient identification

- ผู้ป่วยชายไทยคู่ อายุ 63 ปี
- ภูมิลำเนา จังหวัดกรุงเทพมหานคร
- อาชีพ เกษียณอายุราชการ

Chief complaint

เจ็บคอมาก 2 วัน

Present illness

1 เดือนก่อน ผู้ป่วยมีอาการกลืนติด กลืนอาหารลำบาก

2 วันก่อน รู้สึกเจ็บคอ กลืนอาหารแล้วรู้สึกเจ็บร่วมกับมีไข้ต่ำๆ หายใจหอบเหนื่อย จึงมาตรวจที่โรงพยาบาล

ขอเชิญ Fellow 1 ซักประวัติและตรวจร่างกายเพิ่มเติม

Present illness

4 เดือนก่อน ผู้ป่วยมีอาการเจ็บคอร่วมกับเสียงแหบ ไม่มีไข้ ไม่ไอ ไม่มีน้ำมูก ไม่มีอาการกลืนติดลำบาก รับประทานอาหารได้ตามปกติ ซื้อยา erythromycin มารับประทานเอง อาการเจ็บคอทุเลาแต่ยังคงมีเสียงแหบ

1 เดือนก่อน ผู้ป่วยเริ่มมีอาการกลืนติด รู้สึกกลืนลำบาก โดยเฉพาะเวลากลืนอาหารที่มีลักษณะแข็ง เช่น ข้าวสวย ผู้ป่วยจึงเปลี่ยนไปรับประทานอาหารปั่นแทน ไม่มีอาการกลืนสำลักบ่อย ผู้ป่วยสังเกตว่าตนเองน้ำหนักลดลง 5 กิโลกรัม ในช่วง 1 เดือน

1 สัปดาห์ก่อน อาการกลืนลำบากเป็นมากขึ้นร่วมกับกลืนเจ็บ ผู้ป่วยรู้สึกคอโต คลำพบก้อนที่คอ ก้อนดังกล่าวเคลื่อนตามการกลืน และมีอาการกดเจ็บบริเวณก้อน อาการปวดร้าวขึ้นไปบริเวณใต้คาง ก้อนที่คอโตขึ้นเร็วภายใน 1 สัปดาห์

Present illness

2 วันก่อน ผู้ป่วยรู้สึกมีไข้ต่ำๆ ร่วมกับมีอาการเจ็บที่บริเวณคอด้านขวามากขึ้น คะแนนปวด 7/10 คะแนน ร่วมกับรู้สึกเหนื่อยง่ายเวลาออกแรง เดินภายในบ้านแล้วเหนื่อย พักแล้วดีขึ้น อาการหายใจหอบเหนื่อยไม่ได้สัมพันธ์กับท่าทาง ไม่มีอาการใจสั่นหรือแน่นหน้าอก นอนราบได้ ไม่มีเหงื่อออกเยอะผิดปกติ ผู้ป่วยไม่มีอาการคลื่นไส้อาเจียน ไม่มีปวดท้องหรือถ่ายอุจจาระผิดปกติ รับประทานอาหารปั่นได้น้อย ญาติพามาตรวจรักษาที่โรงพยาบาล

Past history

- วินิจฉัย pulmonary tuberculosis (smear positive) เมื่อ 15 ปีก่อน รับประทานยารักษาวัณโรค 9 เดือน

Personal history

- สูบบุหรี่ 2 ซอง/วัน x 25 ปี [50 pack-year] หยุด 15 ปี
- ไม่ดื่มสุรา ไม่ใช้สารเสพติด

Family history

- ไม่มีประวัติโรคมะเร็งหรือโรคไทรอยด์ในครอบครัว

Drug history

- No history of drug allergy
- No current medication

Physical examination

Vital signs:	T 38.3 ^{0}C	RR 26/min	SpO_2 96% at RA
	BP 140/70 mmHg	HR 120 /min	
	BW 59 kg	Ht 175 cm	BMI 19.27 kg/m2
GA:	An elderly man, alert, cooperative		
	no pallor, no jaundice, mild respiratory distress		
Skins:	moist skins, no rash, no facial swelling, no superficial vein dilatation		
HEENT:	mild injected pharynx, no tonsillar enlargement, hoarseness of voice		
	no exophthalmos, no lid lag, no lid retraction		

Physical examination

Thyroid gland:

Physical examination

Thyroid: - Right thyroid nodule size 6x4 cm, smooth surface, firm consistency with mild tenderness, no warmness, no erythema on overlying skins

- no palpable left lobe of the thyroid gland

- no thyroid bruit

Lymph node: Right cervical lymph node level 4, size 2 cm in diameter, hard, fixed, no tenderness

Physical examination

CVS:	Apical impulse at 5th ICS left MCL, no heaving, no thrill,
	normal S_1S_2, no murmur
RS:	No tracheal deviation, suprasternal retraction, inspiratory stridor
Abdomen:	Soft, no tenderness, no palpable mass, liver and spleen not palpable
Extremities:	No pretibial myxedema, no thyroid acropachy, no onycholysis
NS:	Orientate to time, place, person, no facial palsy, no ptosis
	pupil 3 mm RTLBE, motor power grade V/V all

Problem list

A 63-year-old man no known U/D presented with

1) Acute fever with right-sided neck pain for 2 days
2) Dyspnea on exertion for 2 days
3) Palpable neck mass for 1 week
4) Progressive dysphagia with significant weight loss for 1 month
5) Hoarseness for 4 months
6) PE: right thyroid mass with right cervical lymphadenopathy, signs of mild respiratory distress with inspiratory stridor
7) History of heavy smoking 50 pack-year

Differential diagnosis

ขอเชิญ Fellow 1 ให้การวินิจฉัยและส่งตรวจเพิ่มเติม

Investigations

- CBC: Hb 11.5 g/dL Hct 34.5% WBC 14,730/mm^3

  PMN 89.5% Lymph 3.3% Platelet 211,000/mm^3

- Blood chemistry: BUN 26.3 mg/dL Cr 0.85 mg/dL

  Na 133 mmol/L K 4.4 mmol/L

  Cl 94 mmol/L CO_2 27 mmol/L

- LFT: Albumin 3.6 g/dl Globulin 4.2 g/dl

  Total bilirubin 0.88 mg/dl Direct bilirubin 0.61 mg/dl

  AST 19 U/L ALT 19 U/L ALP 153 U/L

Date	09/08/66
Total Ca (mg/dL)	9.7
Corrected Ca (mg/dL)	10.02
Albumin (g/dL)	3.6
PO4 (mg/dL)	2.9

Thyroid function test

Free T3 **(2.04-4.40) (pg/mL)**	**10.8**
Free T4 **(0.92-1.68) (ng/mL)**	**>7.77**
TSH **(0.27-4.2) (uIU/ml)**	**< 0.005**

Inflammatory markers

ESR (0-15)	88 mm/hr
CRP (<5)	173 mg/dL

Tg (Thyroglobulin) (3.5-77.0)	322.20 ng/ml

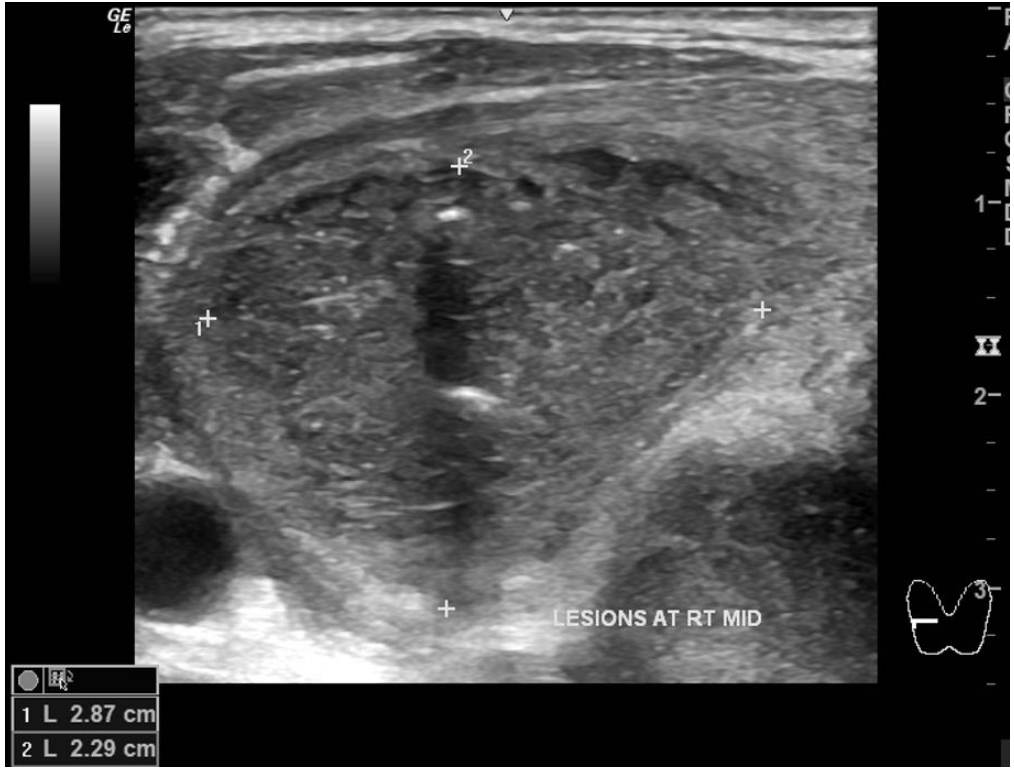
Thyroid antibodies test

Anti-TSH receptor Ab (IU/L)	< 0.8 (Negative)
Anti-thyroglobulin Ab (IU/mL)	420 (<115)
Anti-thyroid peroxidase (IU/mL)	19.4 (Negative)

Thyroid Ultrasound

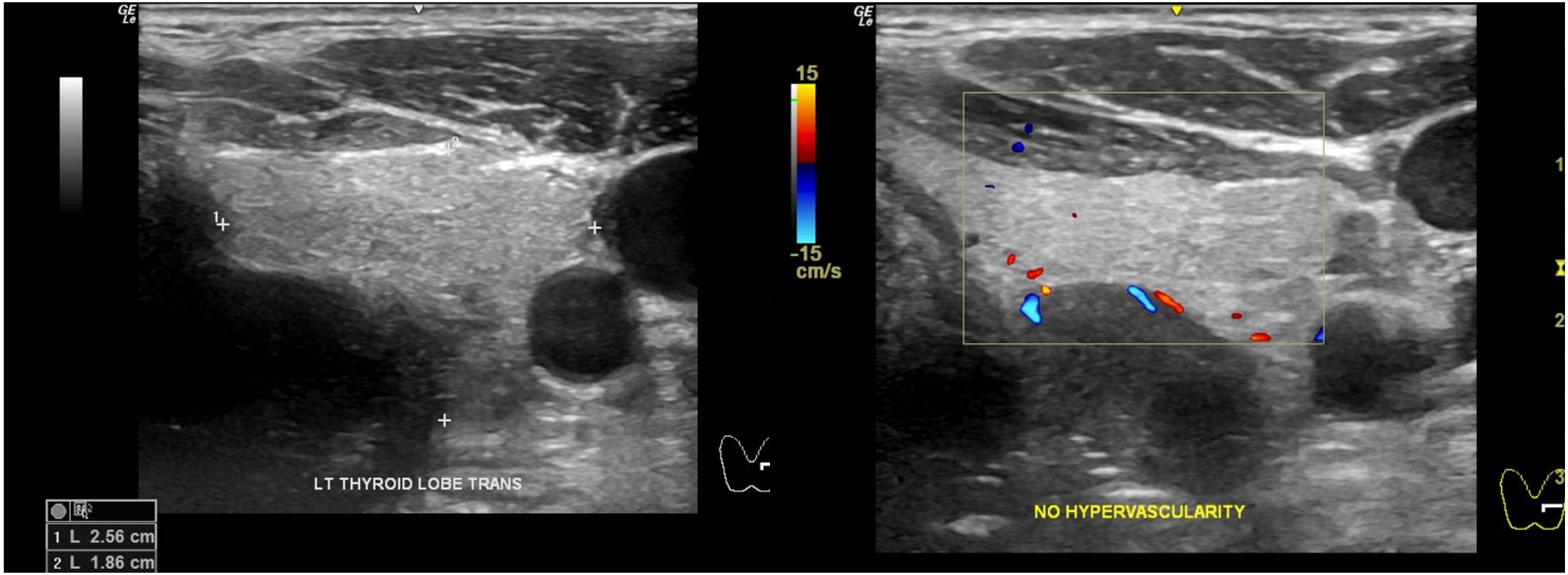
Thyroid Ultrasound

Thyroid Ultrasound



Thyroid Ultrasound

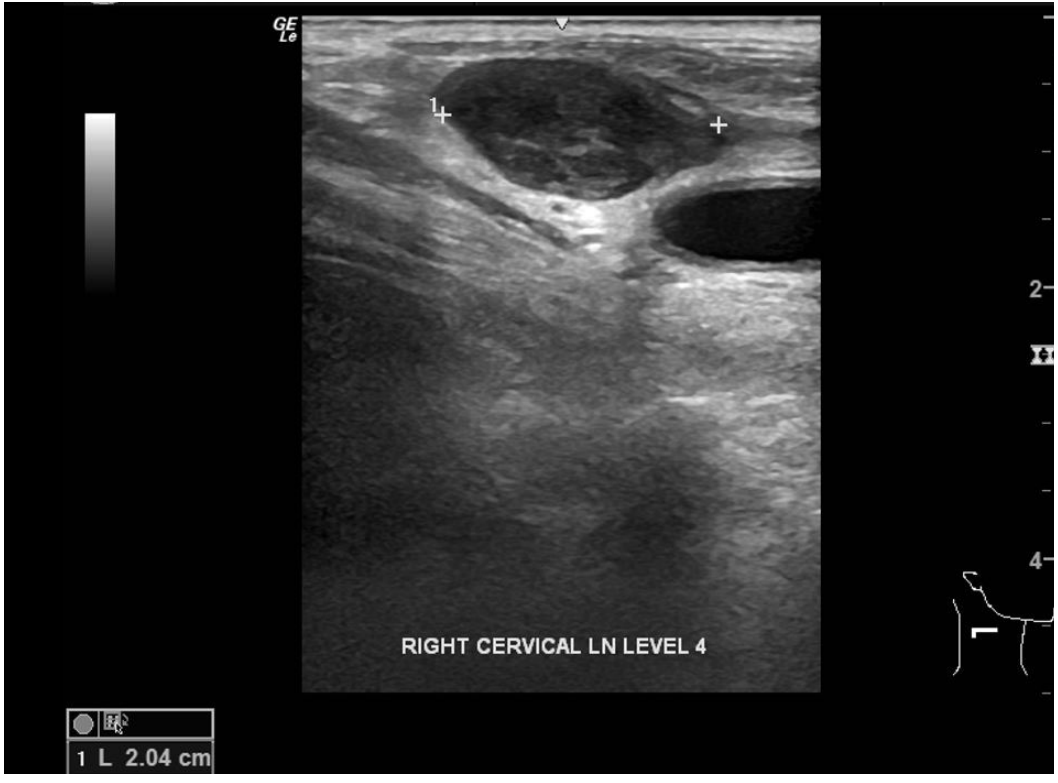
Thyroid Ultrasound



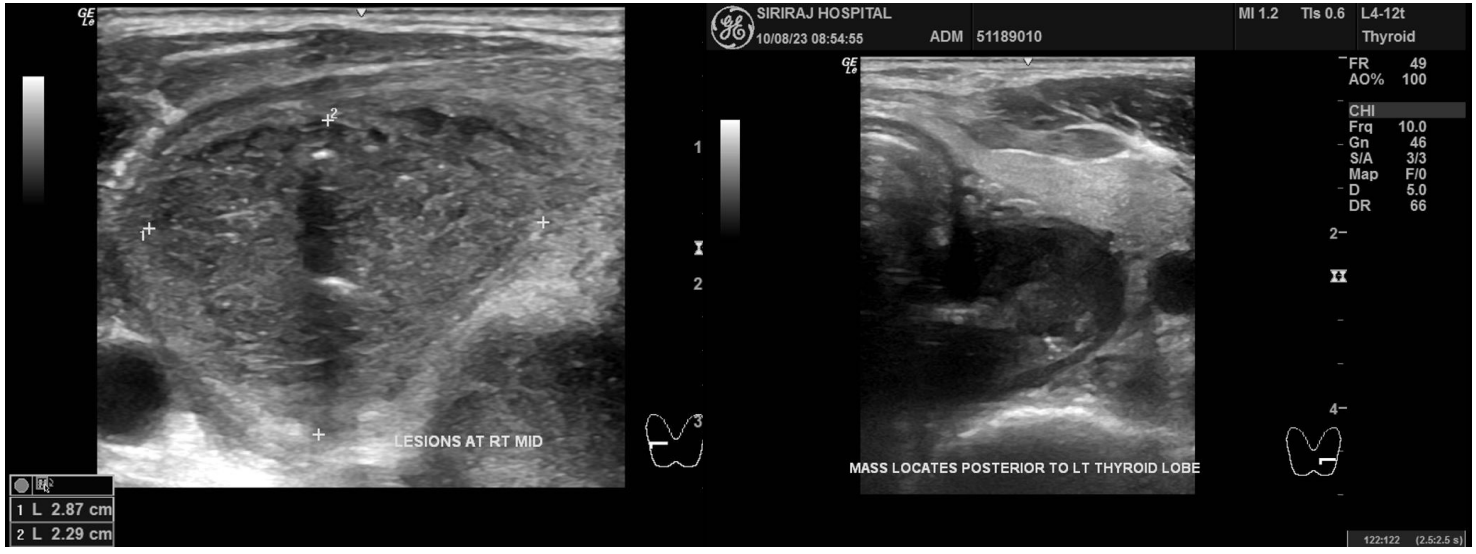
Thyroid Ultrasound

Thyroid Ultrasound

Neck Ultrasound

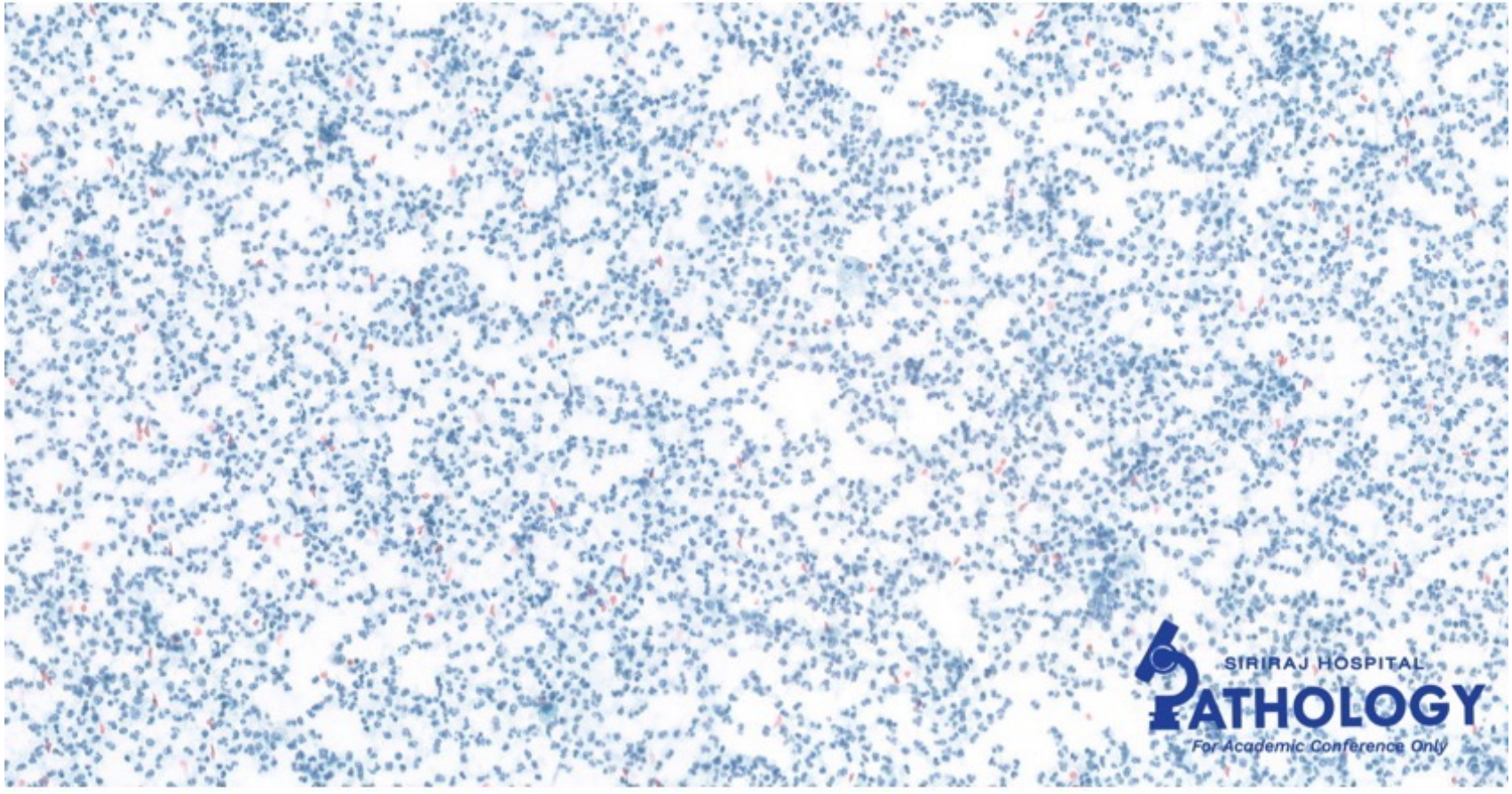


Neck Ultrasound

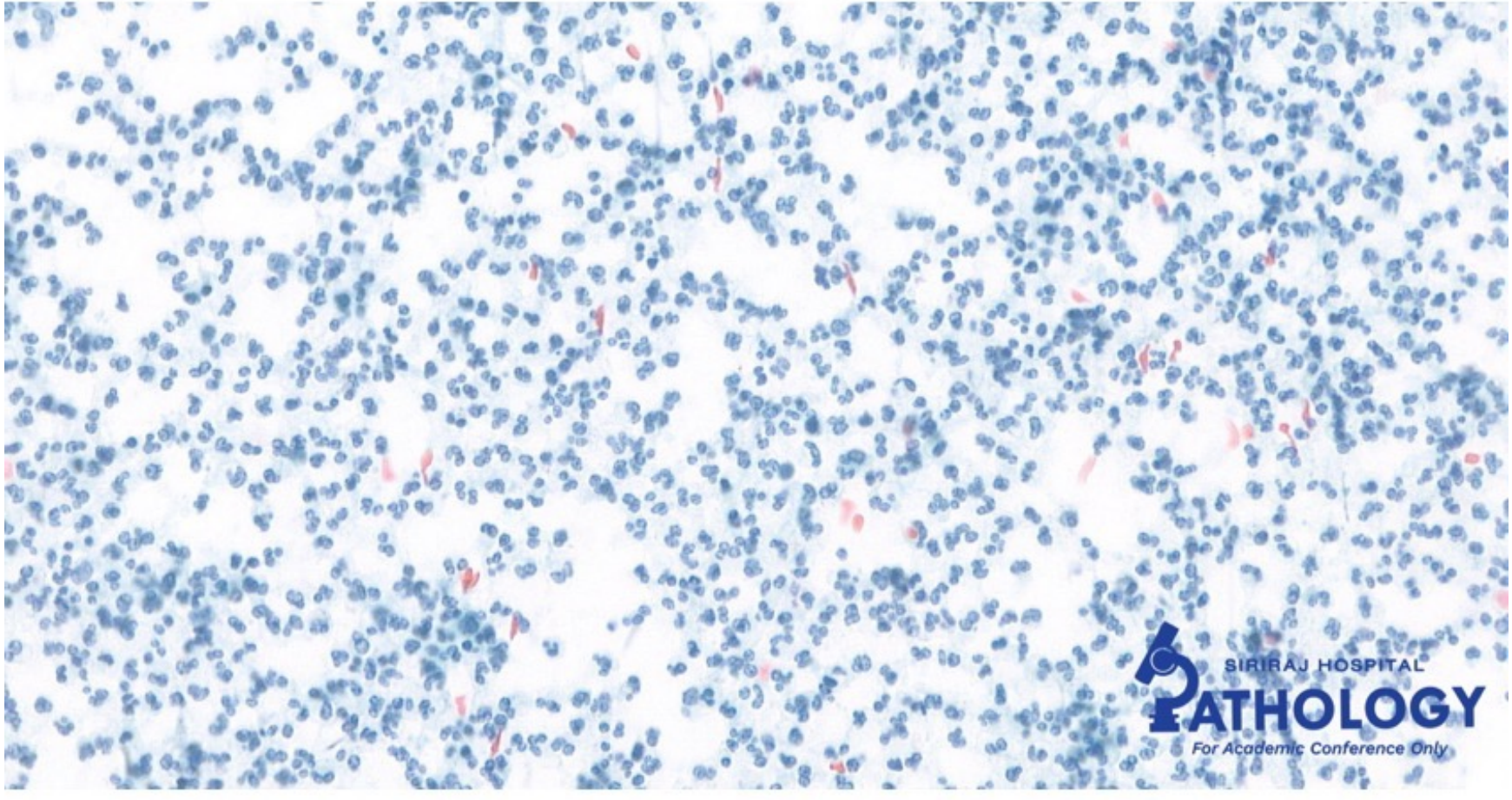


- Homogeneous echotexture of thyroid parenchyma with no increased vascularity
- An ill-defined heterogeneous hypoechoic nodule with internal septation & suspected calcification occupied at right mid-pole size 2.87x 2.55 x 3.73 cm
- Hypoechoic mass located inferior-posterior to both right & left lower thyroid lobes
- Right cervical lymphadenopathy level 4 likely pathological LN

FNA for Cytology (PAP smear 20x)



FNA for Cytology (PAP smear 40x)



Fine needle aspiration for cytology

Source of specimen: Fine needle aspiration, ultrasound-guided
Site: Thyroid **side**: Right

Character of specimen: Smear 6 slides, fixation 95% alcohol and Air-dried, Retained tissue in needle (Insufficient tissue for cell block preparation)

Preparation technique: Smear 6 slides

Staining: PAP, DQ

Adequacy of specimen: Satisfactory for evaluation with limitation

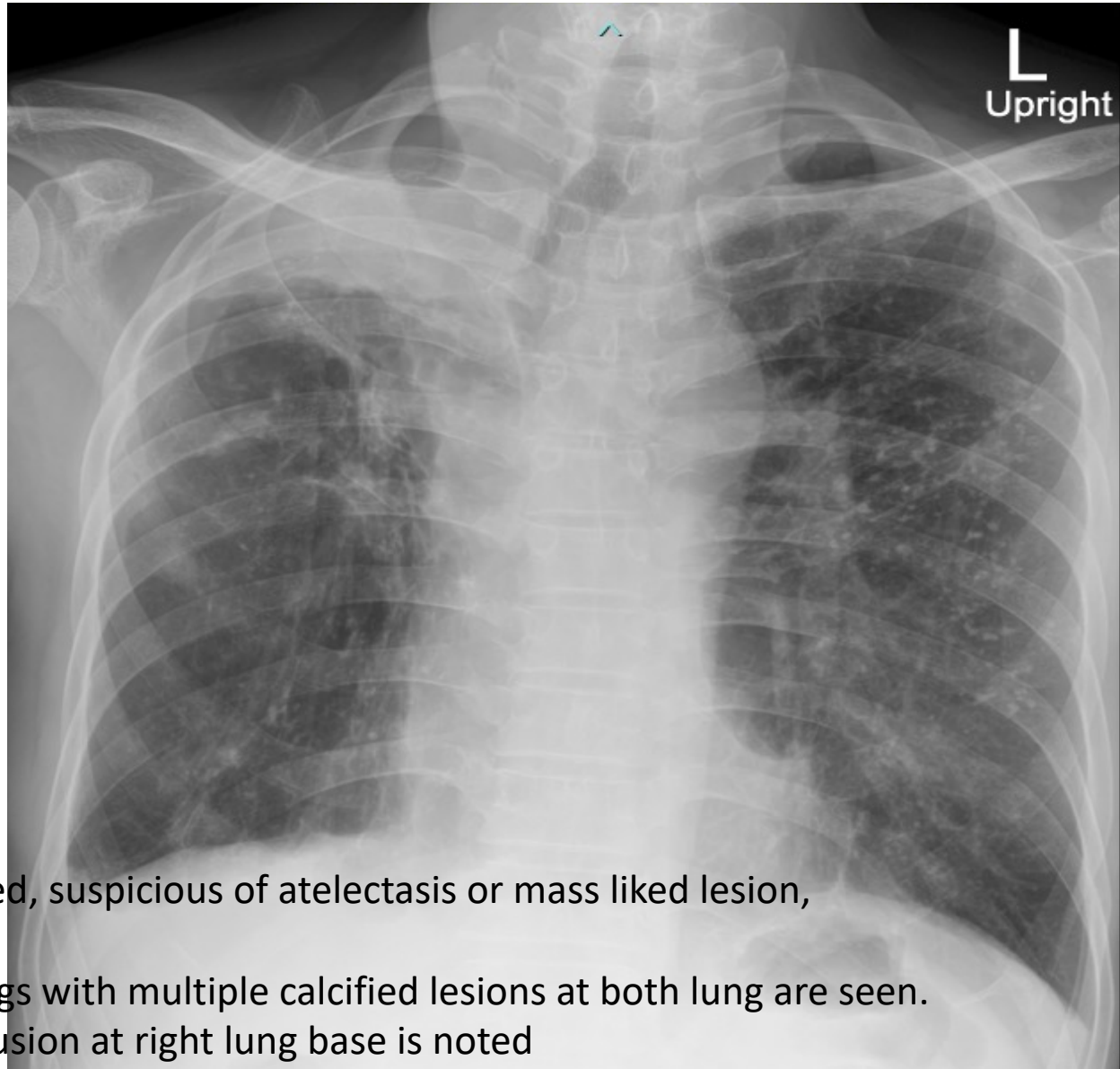
Limitation: Scant follicular cells

Cytologic diagnosis: - Acute suppurative inflammation
- No granulomas or viral cytopathy

Gram stain: no organisms

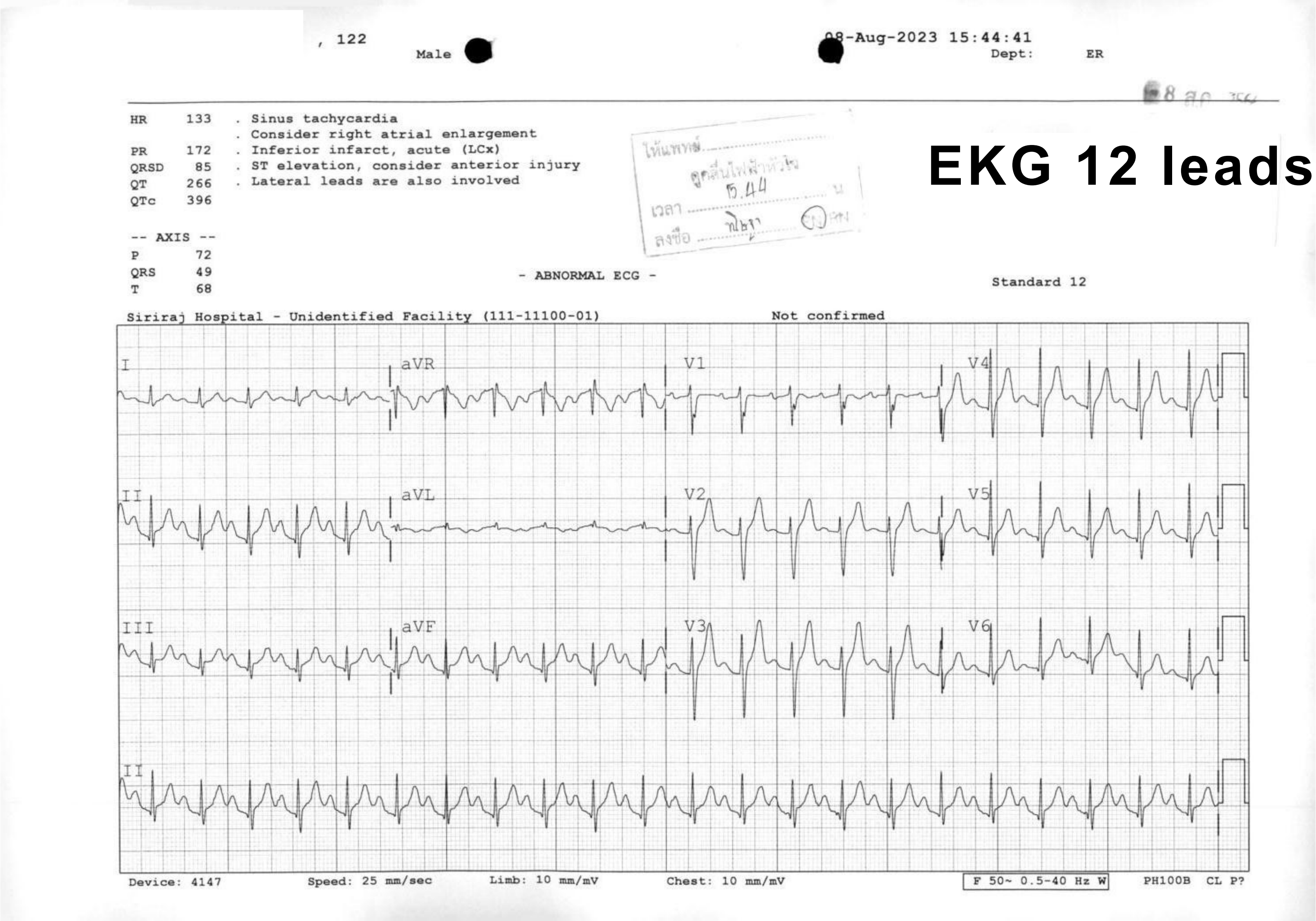
CXR PA upright

CXR PA upright



- RUL opacity with RUL volume loss is noted, suspicious of atelectasis or mass liked lesion, right pleural effusion
- Diffuse interstitial infiltration at both lungs with multiple calcified lesions at both lung are seen.
- Pleural thickening or minimal pleural effusion at right lung base is noted

EKG 12 leads



, 122
Male
08-Aug-2023 15:44:41
Dept: ER
HR 133
PR 172
QRSD 85
QT 266
QTc 396
. Sinus tachycardia
. Consider right atrial enlargement
. Inferior infarct, acute (LCx)
. ST elevation, consider anterior injury
. Lateral leads are also involved
-- AXIS --
P 72
QRS 49
T 68
ให้แพทย์
ดูคลื่นไฟฟ้าหัวใจ
เวลา 5.44 น.
ลงชื่อ
- ABNORMAL ECG -
Standard 12
Siriraj Hospital - Unidentified Facility (111-11100-01)
Not confirmed
I
aVR
V1
V4
II
aVL
V2
V5
III
aVF
V3
V6
II
Device: 4147
Speed: 25 mm/sec
Limb: 10 mm/mV
Chest: 10 mm/mV
F 50~ 0.5-40 Hz W
PH100B
CL P?

- **Gram stain: no organisms**
- **Hemoculture: no growth x 2 specimens**

Provisional diagnosis

Acute suppurative thyroiditis

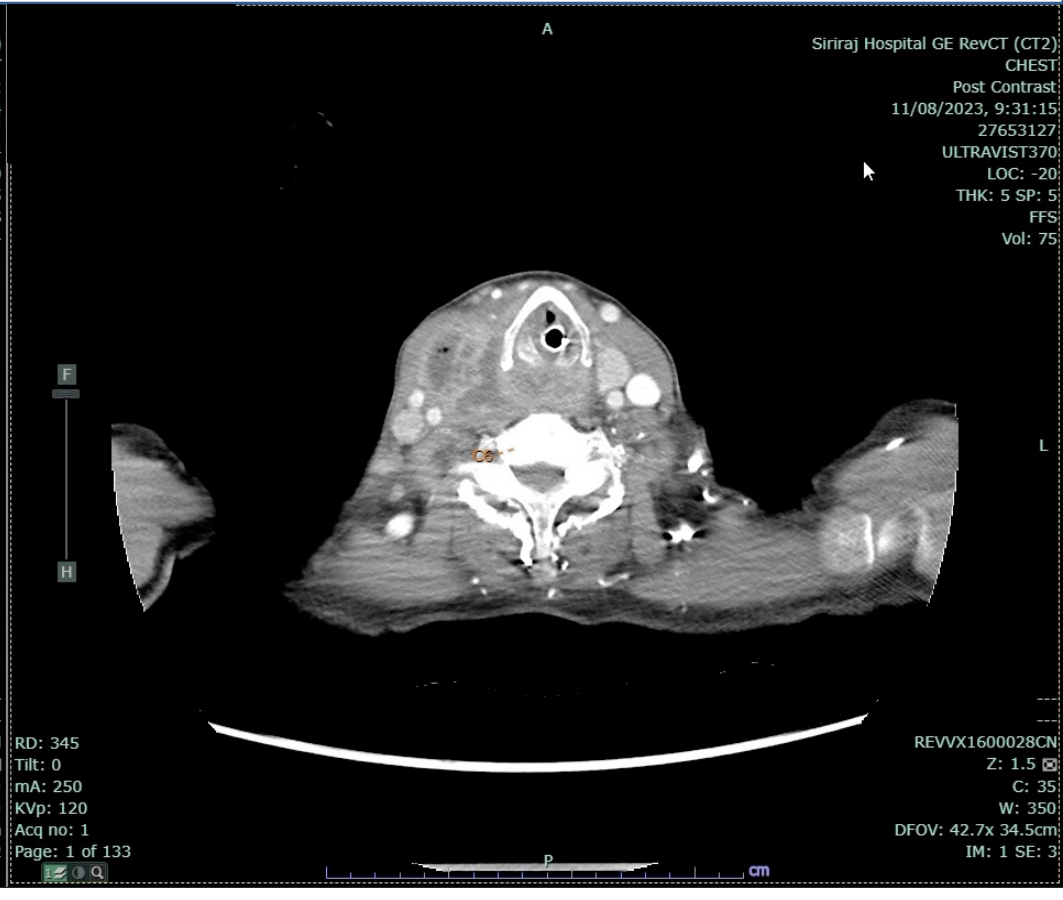
Management

ขอเชิญ Fellow 2 ร่วมวางแผนการรักษาในผู้ป่วยรายนี้

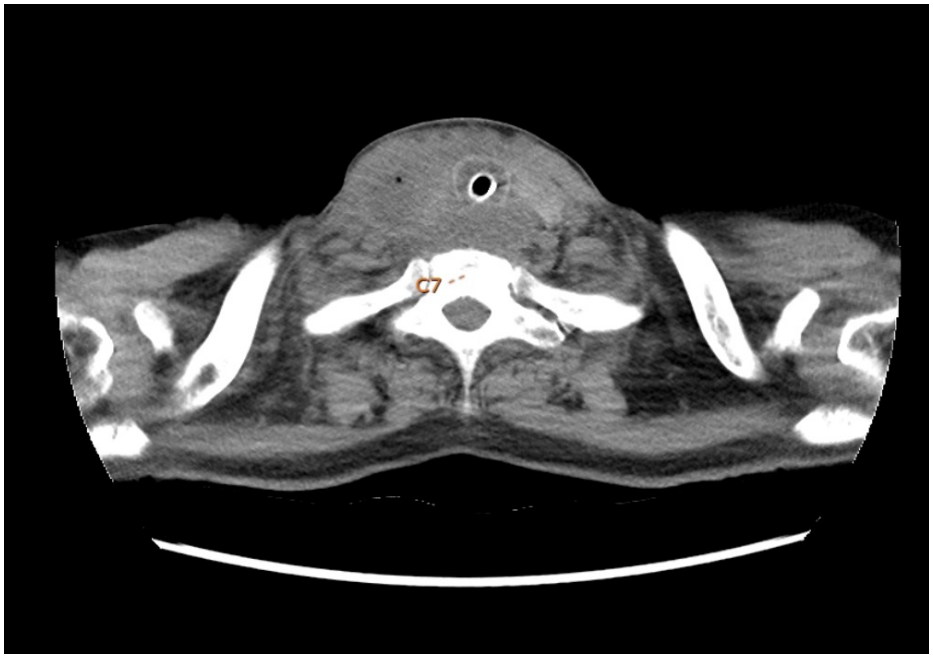
Acute management: suppurative thyroiditis

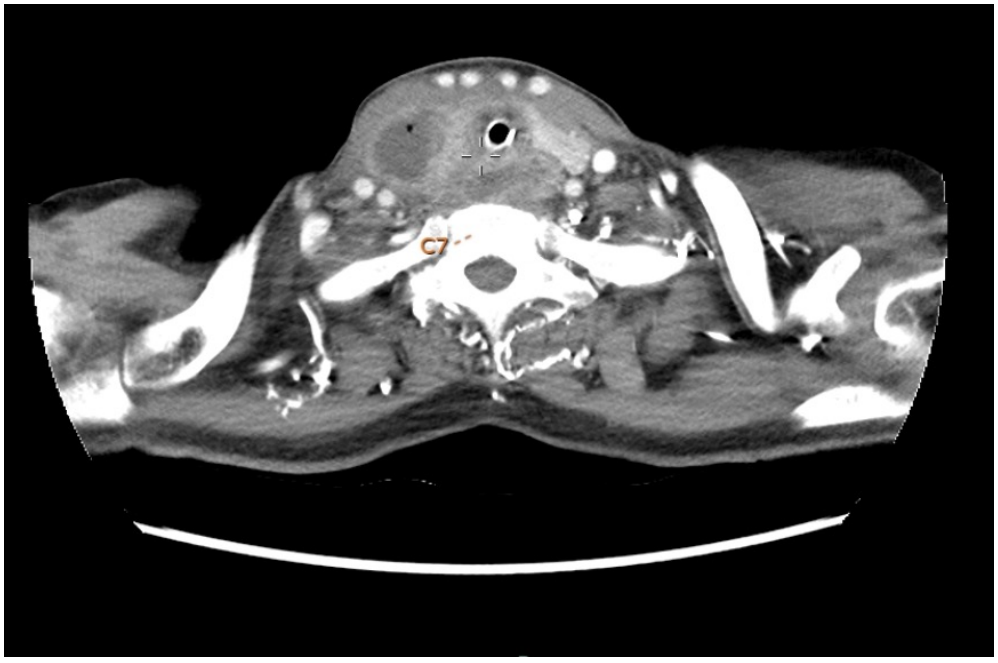
1) **Evaluation of the patient's airway**
   - airway compromise >> consult ENT emergency
   - consider the role of urgent surgical drainage
   - intubation if indicated
2) Board spectrum intravenous antibiotic therapy
3) Management of sepsis
4) Neck CT with contrast urgency after stabilization
5) Management of thyrotoxicosis?

CT neck with contrast



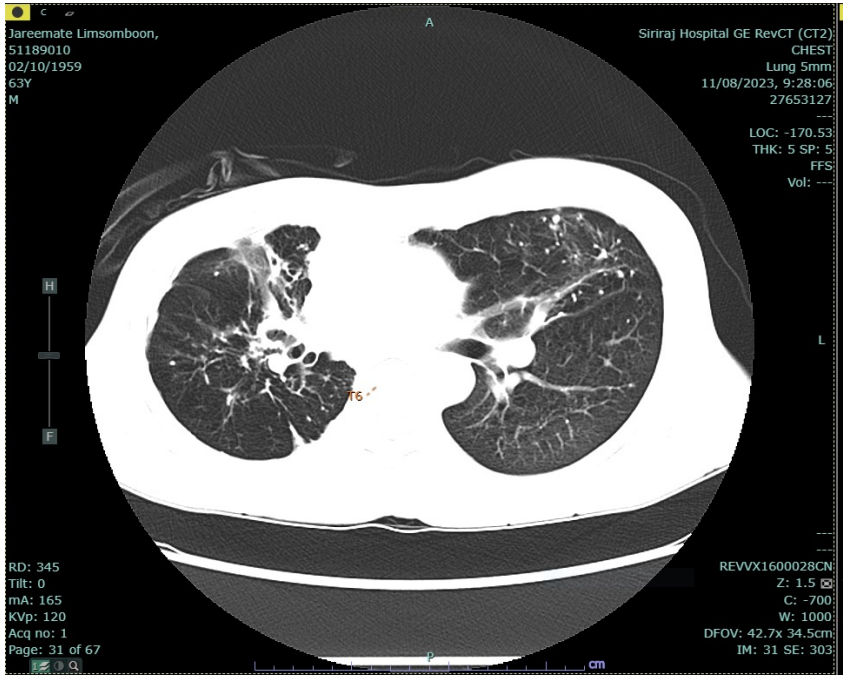
CT neck with contrast

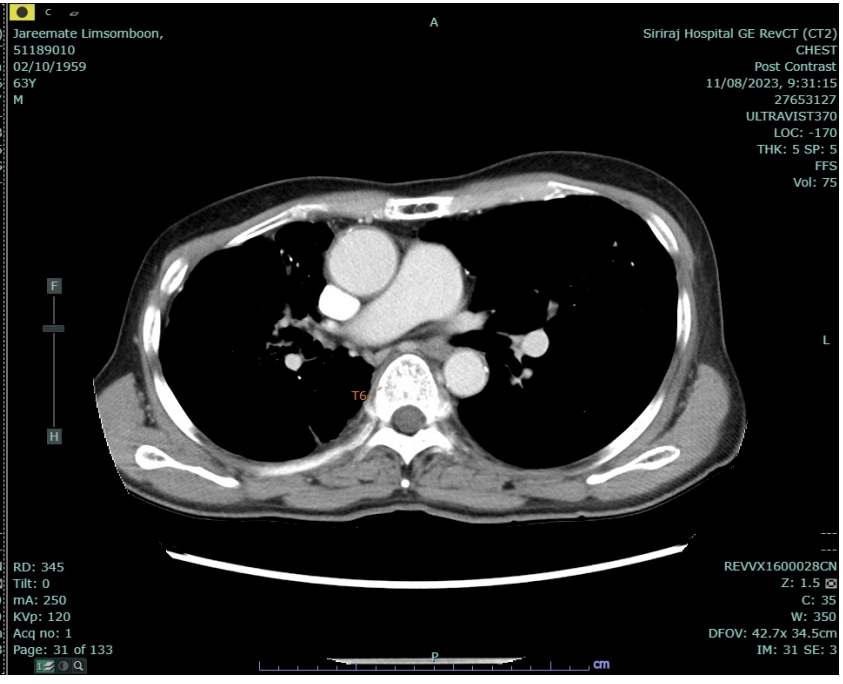




- Paritally seen a 7.5x5.1x6-cm heterogenous rim-enhancing mass with necrotic portion at right thyroid bed and abutting to right carotid space and involving hypolarynx area and upper esophagus, suspicious for advanced aerodigestive tract malignanacy.
- Several lymphadenopathies at right upper paratraceal and right SPC region, likely metastatic nodes.
- Chronic lung granulomatous disease

CT chest with contrast





- Loss of right lung volume. Total collapse of RUL with non-enhancement of RUL parenchyma. Diffuse calcified granuloma at all segments og both lungs, size about 0.2-1.0 cm.
- Extensive fibrotic changed with traction atelectasis at all segments of both lungs.
- All of these findings are suggestive of chronic lung granulomatous disease.

Definite diagnosis

Acute suppurative thyroiditis from CA hypopharynx/esophagus invasion to the thyroid gland

Management: thyrotoxicosis

1) Evaluate the risk of thyroid storm BWPS = 35

2) Control thyroid hormone excess

3) Control heart rate

Preoperative management

Long-term management after stabilization

1) Correction of the cause of suppurative thyroiditis

   - timing and type of surgery

2) Closed follow-up clinical and serial imaging

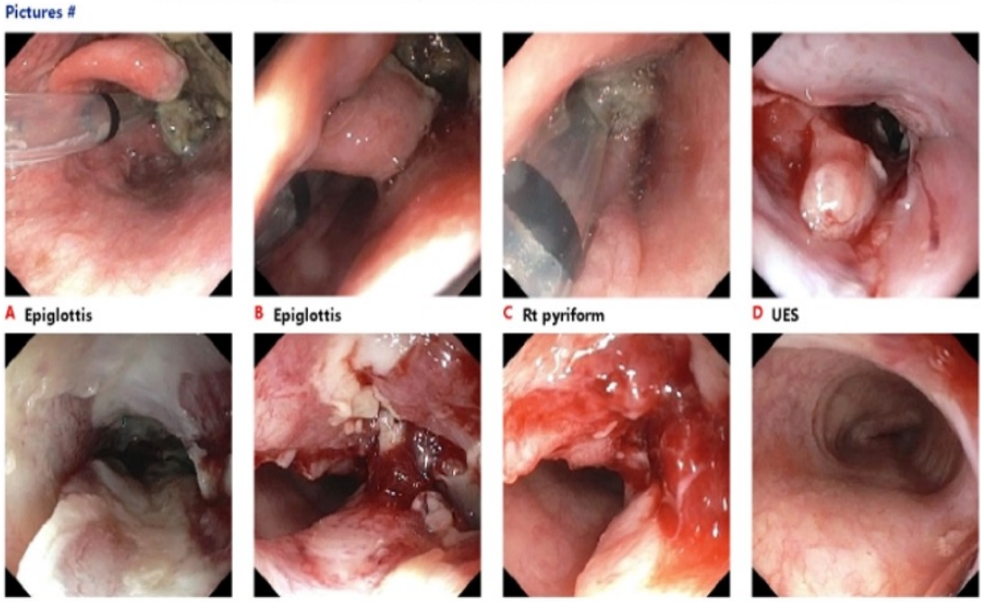
3) Plan the spectrum and duration of ATB

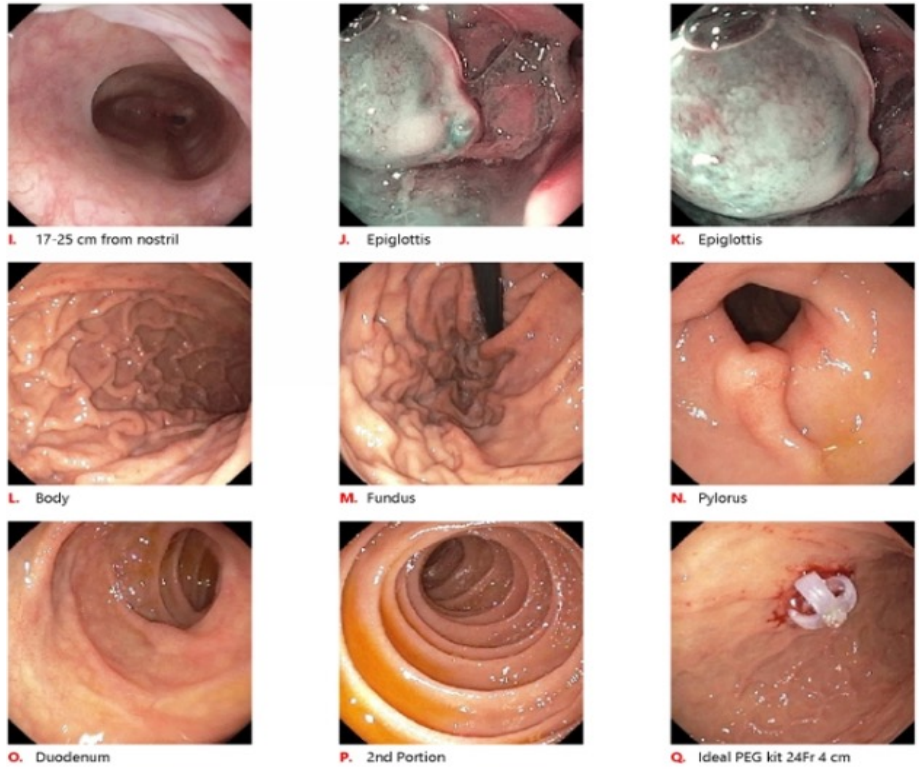
4) Plan of surgery

EGD findings

Oropharynx and Esophagus:
90% circumferential necrotic mass from epiglottis, arytenoid, pyriform, UES (17 cm) to 25 cm from nostril

Diagnosis:
CA hypopharynx and esophagus





PEG insertion

Biopsy for pathology result:
Poorly differentiated squamous cell carcinoma

Progress

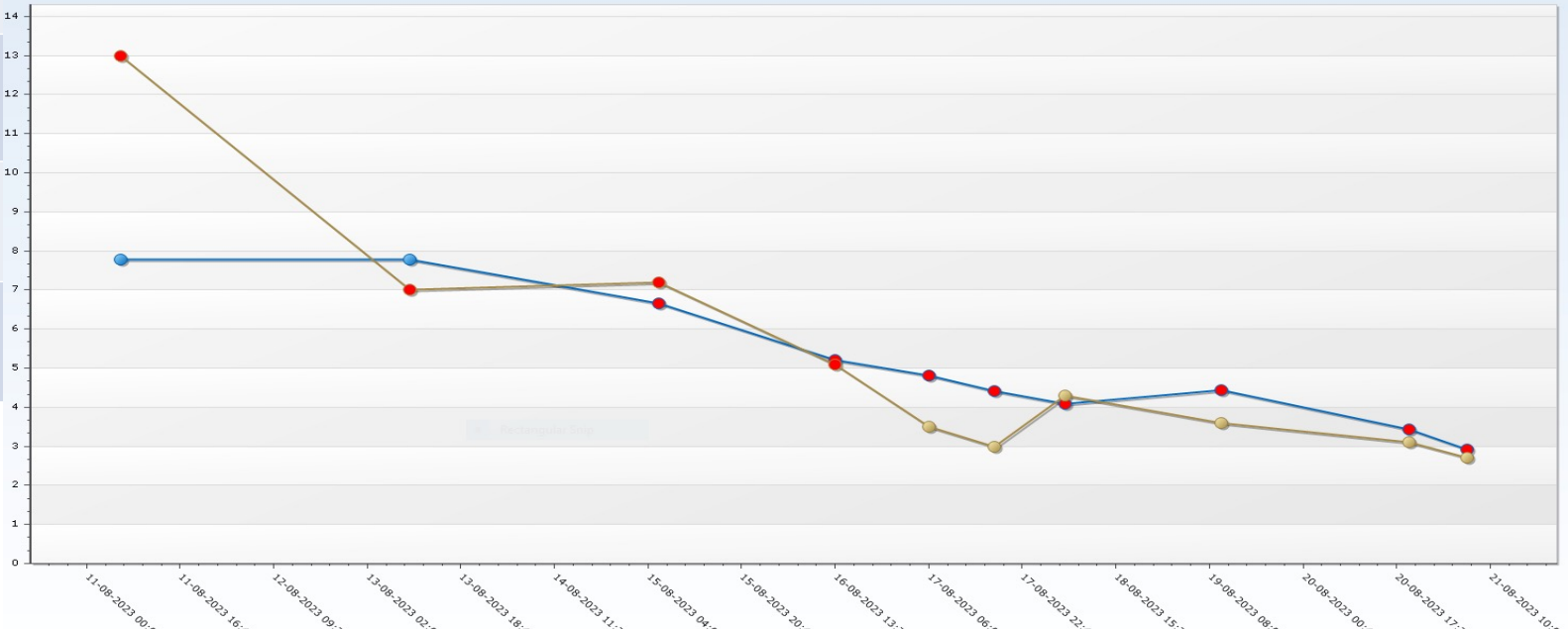
EGD with PEG

Date	11/08/66	13/08/66	15/08/66	16/08/66	17/08/66	18/08/66	20/08/66
FT3 (2.0-4.4)	13.0	7.0	7.2	5.1	3.0	4.3	3.1
FT4 (0.92-1.48)	>7.77	>7.77	6.67	5.21	4.42	4.10	3.44
TSH (0.27-4.2)	<0.005			-	-	-	-
ESR (0-15)	78	102	67	96	96	-	-
CRP (<5)	173	151	120	102	76	-	-

Progress

EGD with PEG

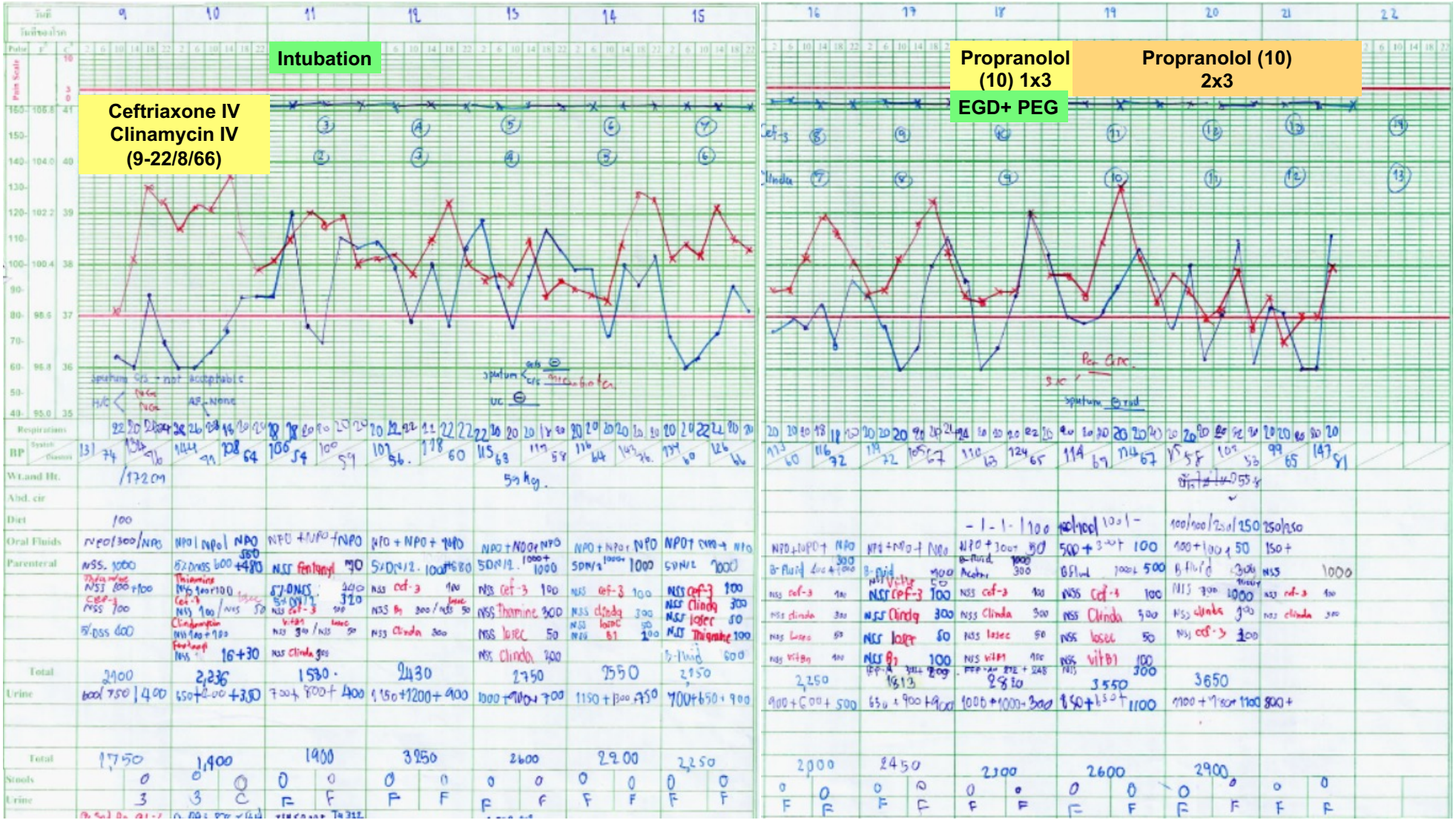
Date	11/08/66	13/08/66	15/08/66	16/08/66	17/08/66	18/08/66	20/08/66
FT3 (2.0-4.4)	13.0	7.0	7.2	5.1	3.0	4.3	3.1
FT4 (0.92-1.48)	>7.77	>7.77	6.67	5.21	4.42	4.10	3.44
TSH (0.27-4.2)							
ESR (0-15)							
CRP (<5)							



Progress

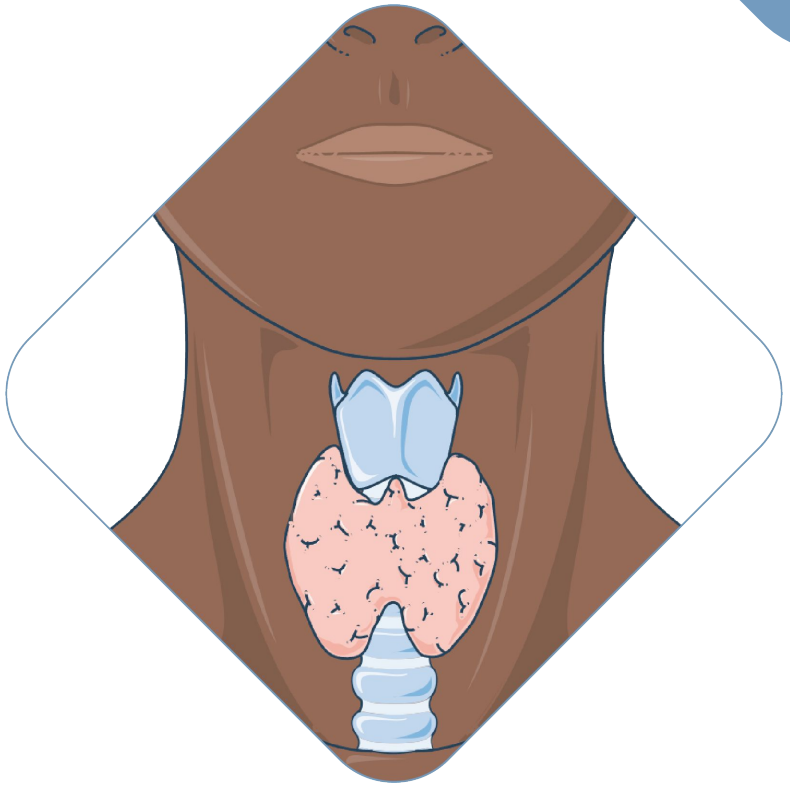
Date	09/08/66	11/08/66	16/08/66	17/08/66	19/08/66	20/08/66
Total Ca (mg/dL)	9.7	8.9	9.5	9.9	10.5	10.4
Corrected Ca (mg/dL)	10.02	10.1	10.86	11.42	11.54	11.44
Albumin (g/dL)	3.6	2.5	2.3	2.1	2.7	2.7
PO4 (mg/dL)	2.9	2.4	2.8	2.5	3.0	2.5
PTH (pg/mL)					6.65	

PTH-independent mild hypercalcemia


Intubation
Ceftriaxone IV
Clinamycin IV
(9-22/8/66)
Propranolol (10) 1x3
EGD+ PEG
Propranolol (10) 2x3

THANK YOU

Acute Suppurative Thyroiditis



F1 Jirapa Dilokruangchai
F2 Piriya Potjanamart

Supervisor
Aj.Pornrumpa Pengkhum

Faculty of Medicine Siriraj Hospital,
Mahidol University

Suppurative Thyroiditis

- **Incidence** 0.1-0.7% of all thyroid disease
- **Mortality rate** 3.7-9%
- Median age 37 years [IQR 23-54]
- Female sex 54%

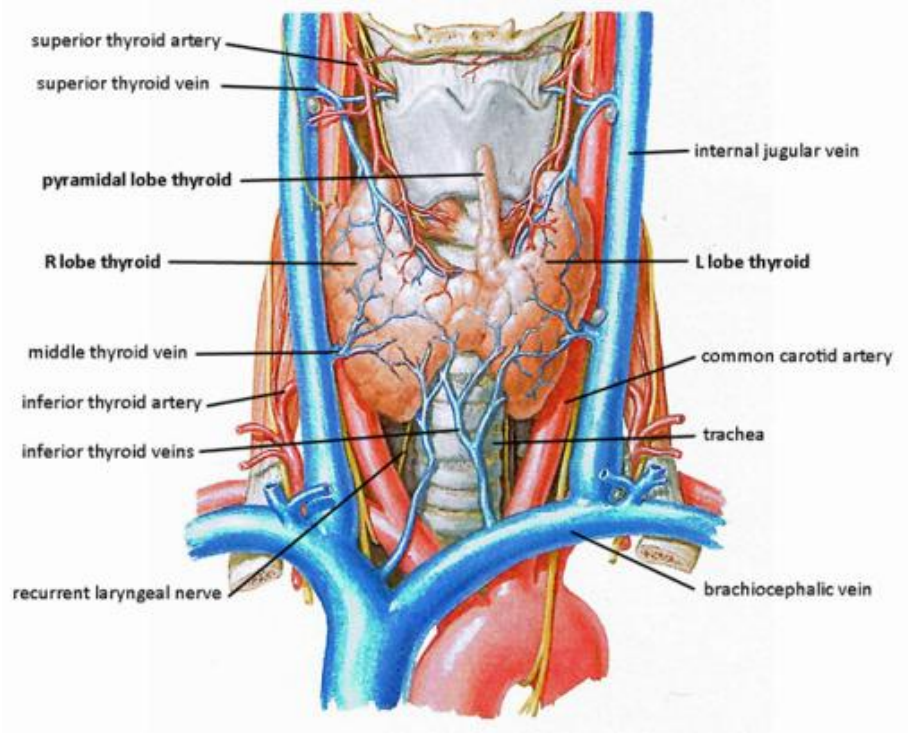
Type	Synonyms
Hashimoto's thyroiditis	Chronic lymphocytic thyroiditis Chronic autoimmune thyroiditis Lymphadenoid goiter
Painless postpartum thyroiditis	Postpartum thyroiditis Subacute lymphocytic thyroiditis
Painless sporadic thyroiditis	Silent sporadic thyroiditis Subacute lymphocytic thyroiditis
Painful subacute thyroiditis	Subacute thyroiditis de Quervain's thyroiditis Giant-cell thyroiditis Subacute granulomatous thyroiditis Pseudogranulomatous thyroiditis
Suppurative thyroiditis	Infectious thyroiditis Acute suppurative thyroiditis Pyrogenic thyroiditis Bacterial thyroiditis
Drug-induced thyroiditis (amiodarone, lithium, interferon alfa, interleukin-2)	
Riedel's thyroiditis	Fibrous thyroiditis

N Engl J Med 2003;348:2646-55.

Lafontaine N et al.Clin Endocrinol (Oxf). 2021;95(2):253–264.

Mechanisms thyroid resistant to infection

- Protective fibrous capsule surrounding the gland (separate other organ from thyroid).
- High iodine content, which may be bactericidal.
- Rich blood supply and extensive lymphatic drainage.



Paes JE et al. Thyroid. (2010). 20(3): 247-255.

Routes of infection predisposing to suppurative thyroiditis

Anatomic
Pyriform sinus fistulae
Lymphatic or hematogenous spread (including septic emboli), increased risk to anatomically altered thyroid gland (e.g., thyroid nodule or cancer)
Direct extension of abscess
Neck trauma
Direct inoculation of thyroid or surrounding anatomy (e.g., intravenous drug use, interventional diagnostic or therapeutic medical procedures such as fine-needle aspiration or central venous line placement)
Secondary infection
Ruptured esophagus
Foreign body ingestion with esophageal perforation
Abnormal thyroid structures (e.g., nodules, malignancies)
Retropharyngeal abscess

In many cases, the route or source of infection is not obvious.

Paes JE et al. Thyroid. (2010). 20(3): 247-255.

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Pathogens

- **Bacterial (68%)** , fungal (15%), mycobacterium (9%), parasite (5%)
  - **Immunocompetent : Gram positive aerobe 31%** , Gram negative aerobe 23%, fungal 1%
  - **Immunocompromised** : Gram positive aerobe 17%, **Gram negative aerobe 33%** , **Fungal 31%**
- In adults, >80% : Staphylococcus aureus and Streptococcus pyogenes
- In children, alpha- and beta- hemolytic Streptococcus and a variety of anaerobes account for 70% of cases, while mixed pathogens are identified in over 50% of cases

Paes JE et al. Thyroid. (2010). 20(3): 247-255.

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Clinical Manifestations

- **Neck pain (89%)** , **flexion : relieve, hyperextension : aggravate;** Pain may radiate to the ear or mandible, tenderness, erythema (32%) and warmth of the skin
- **Fever (82%)**
- Local compression : dysphagia (46%) and dysphonia (15%)
- Median duration of symptoms before presentation
  - **Bacterial : 7 days** [IQR 3-12]
  - Fungal : 21 days [IQR 12-26]
  - Tuberculous : 30 days [IQR 18-60]

Lobe predominance :

Bacterial : Left 65%

Fungal : Right 43%

Tuberculous : Left = Right

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Physical Examination

- Tender, erythema of overlay skin (32%)
- Abscess formation is indicated by fluctuance; a firm nodule may progress to fluctuance in 1-3 days **(Need repeated physical examinations)** .
- Cervical lymphadenopathy may be present.

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Lab

- **Elevated white cell count (82%), Elevated ESR (90%)**
- TFT : **Most euthyroidism (54%)** , thyrotoxicosis (42%) or hypothyroid (5%).
- Serial TFT (if clinically indicated), as there can be the release T3 & T4 due to destruction of thyroid follicles (T4 toxicosis 87% of hyperthyroidism case)
- Anti-HIV : for empirical suspected organism

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Imaging

- U/S : Diagnostic and Therapeutic
- CT : Provide better anatomical assessment and extension of the abscess
- Suppurative areas appear “cold” on radioactive-iodine scanning
- Thyroid uptake : normal

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Differential diagnosis of AST

Inflammatory	Subacute thyroiditis
	Painful Hashimoto thyroiditis
	Radiation thyroiditis
Infective	Sternocleidomastoid abscess
	Parapharyngeal abscess
	Lymph node suppuration
	Thyroglossal duct cysts infection
	Retropharyngeal deep space abscess
Malignant pseudothyroiditis	Thyroid cancer
	Thyroid lymphoma
	Metastases to thyroid
	Parathyroid cancer
Trauma	Palpation thyroiditis
	Blunt trauma
Infiltrative	Amyloidosis
Other	Thyroid/parathyroid nodule haemorrhage/rupture
	Deep vein thrombosis
	Branchial arches 1-4 anomalies

Abbreviation ; AST, Acute suppurative thyroiditis

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Clinical features	AST	SAT
Fever	**72%**	54%
Pain	70%	77%
Migrating thyroid tenderness	Not usual	**27%**
Erythema of overlay skin	**32%**	Not usual
Clinical course - Response to glucocorticoid treatment	Transient/No	**Good**
Laboratory - Elevated white cell count - White cell count (*10^9/L) - Elevated ESR - Abnormal thyroid function tests (hyper or hypothyroidism) - **Fine needle aspirate**	 82% 14.3 90% 44% **Pus, pathogens**	 25%-50% 6.5 85% 60% **Giant cells, granulomas**

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Clinical features	AST	SAT
Imaging - Ultrasound	**Most helpful in early stage (before abscess formation)** Hypoechoic area, perithyroidal hypoechoic space, effacement of perithyroid tissue and thyroid gland. Later an abscess may be identified.	Varied findings. Most commonly ill-defined hypoechoic areas, may be unilateral or bilateral.
- CT	**Most helpful in acute phase (when abscess formation has occurred).** May identify an abscess, oedema of ipsilateral hypopharynx, hypodense area in thyroid, swelling or shifting of thyroid.	Thyroid gland lower attenuation (around 45 HU) and moderate enhancement after contrast.

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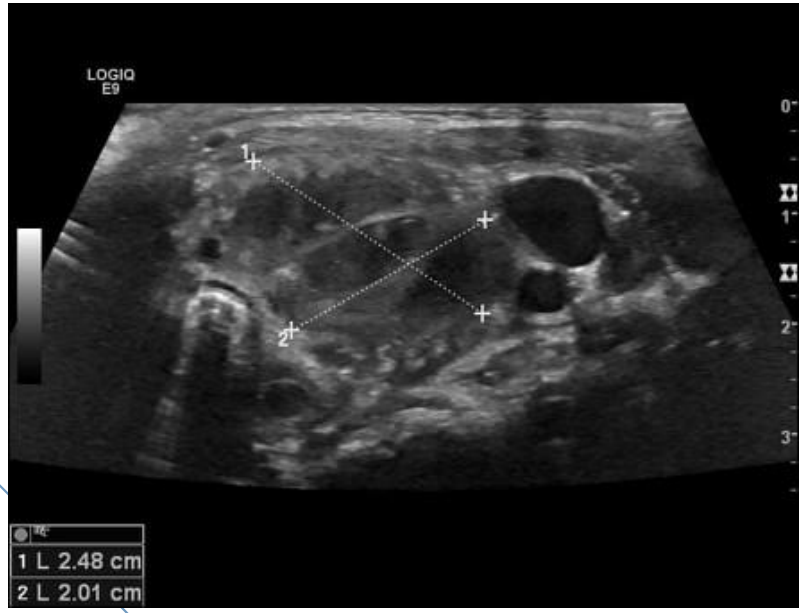
AST vs SAT

- US : abscess in AST vs. diffuse heterogeneity and low intensity vascular flow in SAT
- US-FNA targeting any mass and/or fluid collection



AST

SAT

AST vs Thyroid cancer

- Anaplastic thyroid cancer (ATC) or Medullary thyroid cancer (MTC) may grow rapidly and cause local infarction, necrosis, and thyroid tenderness mimicking AST or serve as a predisposing nidus for secondary infection
- **US-FNA helpful in this differential diagnosis**

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Fine-needle aspiration biopsy (FNAB)

- The best single laboratory test in the evaluation of infectious thyroiditis and will be diagnostic in most cases.
- FNAB with Gram's staining and culture is the diagnostic test of choice.

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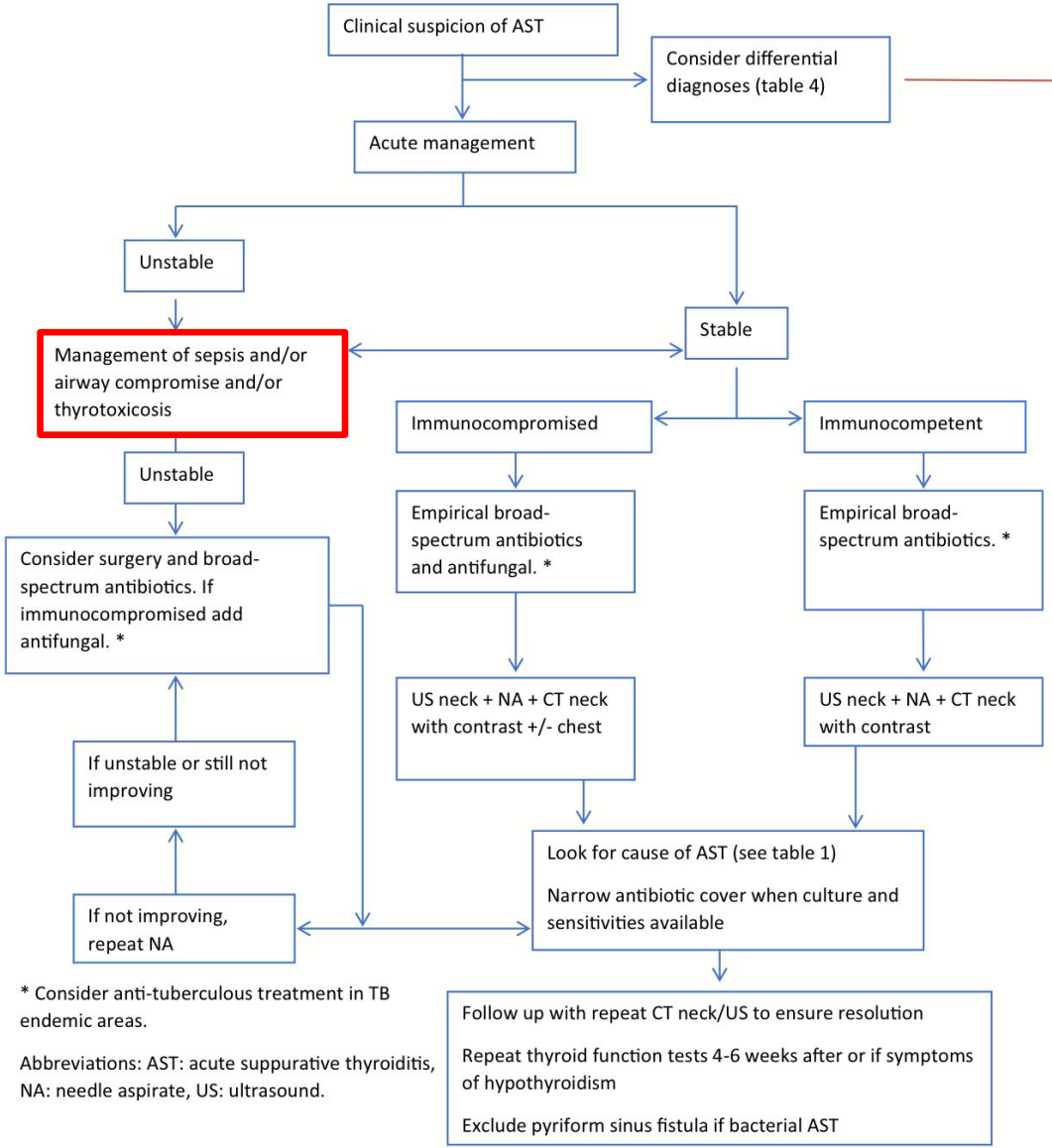

TABLE 4 Differential diagnosis for AST[4,23-27]

Inflammatory	Subacute thyroiditis
	Painful Hashimoto thyroiditis
	Radiation thyroiditis
Infective	Sternocleidomastoid abscess
	Parapharyngeal abscess
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Trauma	Palpation thyroiditis
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Abbreviations: AST, acute suppurative thyroiditis.

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Case Report

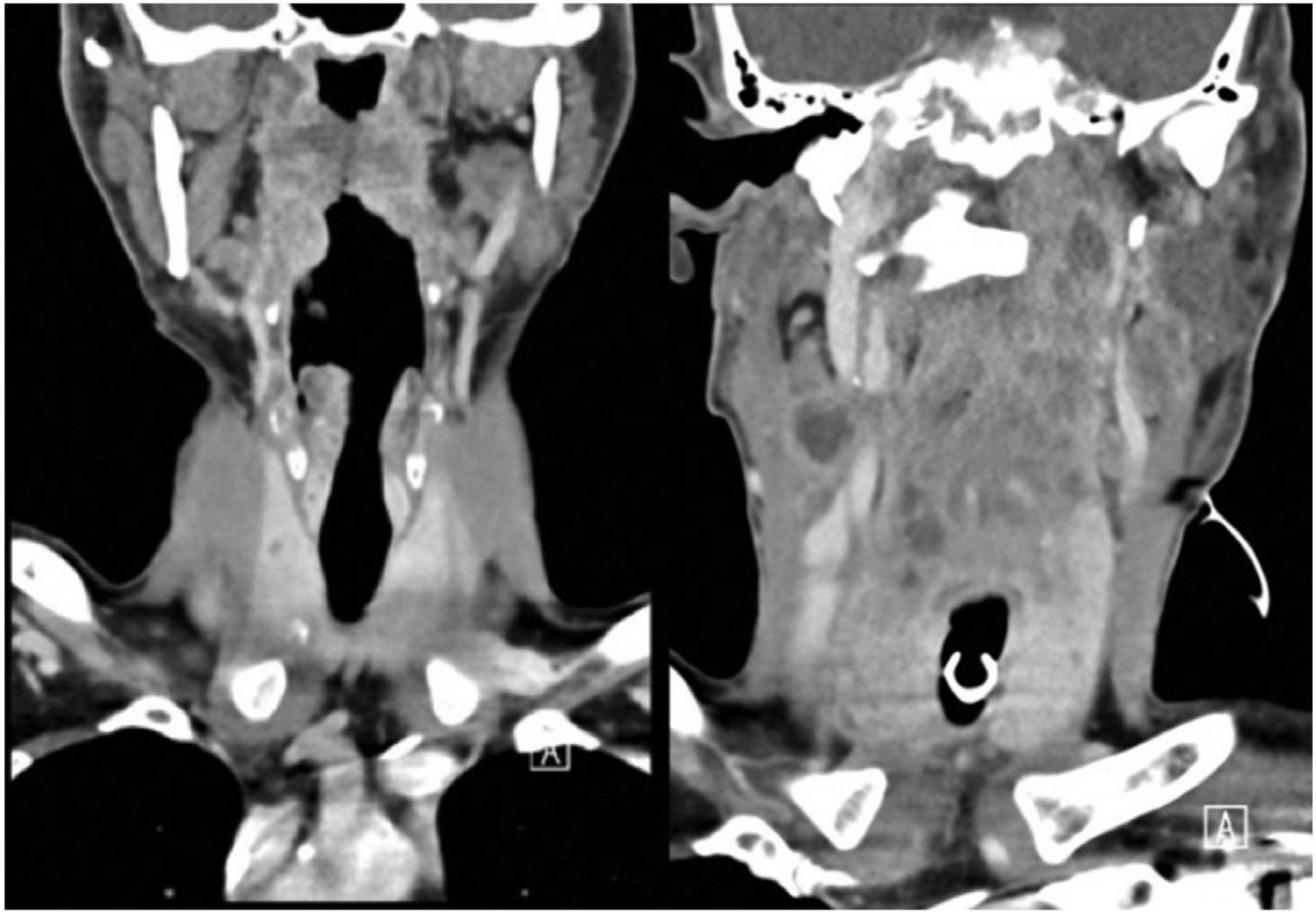
Refractory Thyrotoxicosis in Oropharyngeal Squamous Cell Carcinoma Invading the Thyroid Gland

Lih Khuang Go, MBBS [1,*], Huiling Liew, MMED, FRCP [2], Hao Li, MMED, MCI [1]

[1] *Department of Otorhinolaryngology, Tan Tock Seng Hospital, Singapore*
[2] *Department of Endocrinology, Tan Tock Seng Hospital, Singapore*

A 62-year-old Indian man with stage IV Oropharyngeal Squamous Cell Carcinoma (OPSCC), HT, DLP, IHD (EF23%) on AICD, plan RT

- Admitted for elective gastrostomy -> fever, tachycardia, elevated WBC and CRP -> Rx as sepsis and not improved.
- Neck CT : Rapid progression of OPSCC with invasion of bilateral thyroid lobes.
- TFT : Thyrotoxicosis, Ab negative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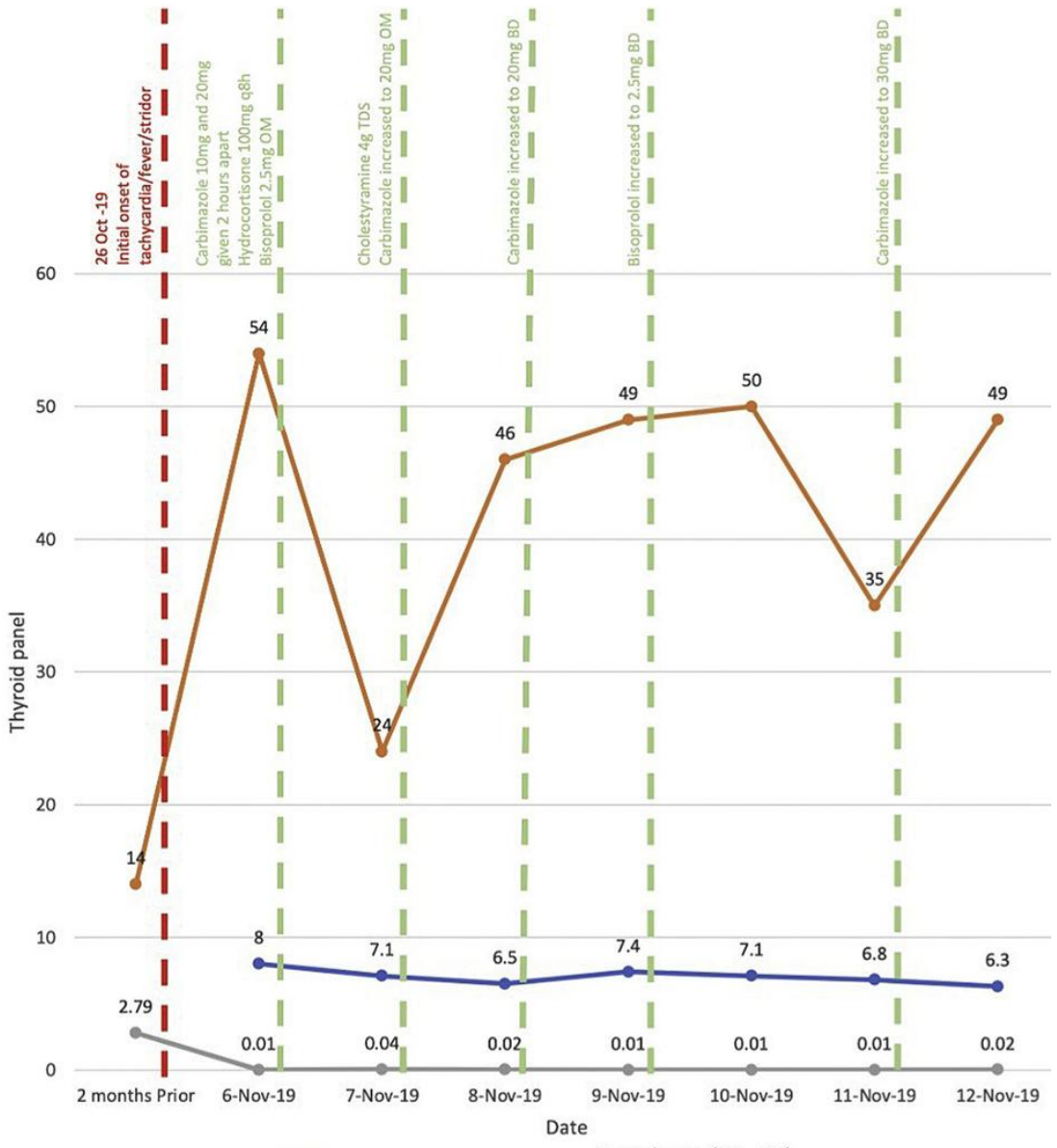

He died due to cardiorespiratory collapse due to tumor progression, new onset AF, poor U/D cardiac function

FT3,pmol/L — Normal range (3.5 – 6.0)

Free Thyroxine (FT4), pmol/L — Normal range (8.0 – 16.0)

TSH, mIU/L — Normal range (0.45 – 4.5)

Thank you!